



## **Arlington Conservation Commission**

**Date:** Thursday, December 15, 2022

**Time:** 7:00 PM

**Location:** Conducted by Remote Participation

Pursuant to State Legislation suspending certain provisions of the Open Meeting Law, G. L. c. 30A, § 20 relating to the COVID-19 emergency, the December 15, 2022, public meeting of the Arlington Conservation Commission shall be physically closed to the public to avoid group congregation. The meeting shall instead be held virtually using Zoom. Please register in advance for this meeting. Reference materials, instructions, and access information for this specific meeting will be available 48 hours prior to the meeting on the Commission's agenda and minutes page.

### **Agenda**

1. Administrative
  - a.
    1. Statement by Conservation Commission Chair Susan Chapnick on prohibition of artificial turf in jurisdictional areas
    2. Letter from Park & Recreation Commission regarding artificial turf
    3. Response by Susan Chapnick to letter from Park & Recreation Commission regarding artificial turf



## Town of Arlington, Massachusetts

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### Correspondence Received

#### Summary:

1. Statement by Conservation Commission Chair Susan Chapnick on prohibition of artificial turf in jurisdictional areas
2. Letter from Park & Recreation Commission regarding artificial turf
3. Response by Susan Chapnick to letter from Park & Recreation Commission regarding artificial turf

#### ATTACHMENTS:

Type	File Name	Description
Reference Material	Letter_to_the_Conservation_Commission_from_Park_and_Rec_Commission_12.6.22.pdf	Letter to the Conservation Commission from Park and Rec Commission
Reference Material	Response_by_S._Chapnick_to_J._Rothenberg_Re_Letter_to_the_Conservation_Commission.pdf	Response by S. Chapnick to J. Rothenberg Re Letter to the Conservation Commission
Reference Material	Statement_of_S.Chapnick_ACC_on_Prohibiting_Artificial_Turf_Fields_in_Wetland_Resource_Areas_08Dec2022.pdf	Statement of S.Chapnick ACC on Prohibiting Artificial Turf Fields in Wetland Resource Areas

December 6, 2022

Members of the Conservation Commission:

We are writing to express our dissatisfaction with the process that led to the most recent suggested changes to the Conservation Commission's by-laws (Draft Wetland Regulations 11/18/22).

The Park and Recreation Commission (PRC) has continued to make a significant effort to ensure that other town bodies and commissions are aware of discussions we are having regarding any shared properties. We have a liaison from your commission attending our meetings in an effort to keep open lines of communication and avoid situations like this.

The most recent move of the Commission to add artificial turf to the list of prohibited materials in jurisdictional areas comes as a major surprise to the PRC. That an action of this magnitude was not brought to our attention by the Conservation Commission liaison and without any outreach for a preliminary discussion is very disappointing.

We believe we have built a partnership with yours and other commissions in Arlington to create dialogue that ultimately serves the best interests of our entire community. The PRC is frustrated that a conversation wasn't initiated sooner. The message you've sent is that you are not interested in our input and are closing the door to discussion about future decisions as well.

We ask that you slow this process down and allow time for input from the PRC as well as from residents of the Town of Arlington. We would have afforded you and them the same courtesy.

Sincerely,

Members of the Park & Recreation Commission

Phil Lasker

Leslie Mayer

Jen Rothenberg

Shirley Canniff

Josh Fenollosa

**Subject:** Re: Letter to the Conservation Commission

**From:** "Susan D. Chapnick, NEH" <s.chapnick@comcast.net>

**Date:** 12/6/2022, 3:44 PM

**To:** Jen Rothenberg <jenjenroth@gmail.com>

**CC:** Phil Lasker <phil\_lasker@yahoo.com>, David Morgan <dmorgan@town.arlington.ma.us>, Joe Connelly <jconnelly@town.arlington.ma.us>

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Jen,

I apologize. Neither I nor the Commission want you or the Park & Recreation Commission to feel uninvited to the conversation about artificial turf fields in wetland resource areas. I understand from your letter that you believe a conversation should have been initiated sooner, and I take it to heart that we need to improve communications.

As you may know, the Conservation Commission (ConCom) routinely proposes updates to our local regulations under the Town Bylaw. The last time we did this was in 2018. First, our process is internal to the Commission while we are generating a draft update of the regulations. We accomplish this by discussing internal drafts during multiple public meetings. Second, we distribute it to Town Counsel for input. After Town Counsel has edited & commented, we revise the draft and provide it to other boards and commissions. We then have a public meeting for discussion and vote on the Regulation updates.

The ConCom's December 15th meeting was scheduled in line with the process I outlined. We invited PRC to a discussion of artificial turf in jurisdictional areas as our first priority because ConCom believes that the meeting will afford us an opportunity for a broader discussion. This is an important topic that deserves attention from all stakeholders, especially your commission. If PRC thinks that this is not enough lead-time for appropriate input, we are open to postponing the discussion to a subsequent ConCom public meeting date. Our first few meetings in 2023 are: Jan 5th, Jan 19th, & Feb 2nd.

Thank you,  
Susan

**Susan D. Chapnick**

Chair, Arlington Conservation Commission  
s.chapnick@comcast.net

On 12/06/2022 1:44 PM Jen Rothenberg <jenjenroth@gmail.com> wrote:

Dear Ms. Chapnick:

The Conservation Commission members don't seem to have their emails listed on the town website making it difficult to connect with them directly. Could you please forward the attached letter to the entire commission?

Thank you,

Jen Rothenberg

On behalf of the Park & Recreation Commission

## **Intro Statement**

The purpose of Arlington's Wetlands Protection Bylaw is "to protect the wetlands, water resources, and adjoining land areas in Arlington by controlling activities deemed by the Conservation Commission likely to have a significant or cumulative effect upon resource area values, including but not limited to, the following: ground water supply, flood control, prevention of pollution, wildlife protection, plant or wildlife habitat, aquatic species and their habitats, and the natural character or recreational values of the wetland resources (collectively, the "resource area values protected by this Bylaw").

This purpose is achieved by requiring anyone wishing to remove, fill, dredge, discharge into, build upon, degrade or otherwise alter any marsh, freshwater wetland, vernal pool, wet meadow, bog, swamp, river, stream, creek, pond, reservoir, or lake, or any bank to said waters, or any land under said waters, or any land bordering thereon or riverfront area as hereinafter defined, or any land subject to flooding or inundation (collectively, "the resource areas protected by this Bylaw" or "resource areas") to file an application with the Conservation Commission to review and approve, approve with conditions, or deny the proposed work.

Over the years, the Commission has granted permits to and monitored projects that include artificial turf playing fields, such as at the Arlington High School and Arlington Catholic High School. During those proceedings, and after, the Commission has become aware of the growing body of science that looks at whether all or some types of artificial turf fields, or their components, have a significant or cumulative effect on resource areas and resource area values.

The purpose of this evening's meeting is to review the Commission's experience with, and the scientific papers and studies about, artificial turf fields.

This is in the context of the Commission revising its Wetland Regulations.

## **Statement of Susan Chapnick as a member of the ACC:**

**It is my opinion that the current weight-of-evidence points to adverse effects on wetland resource areas and resource area values from Artificial Turf Fields and negative climate resilience impacts.**

Arlington Bylaw Article 8 Section 4 states that in order to receive a permit, it must be "proven by a preponderance of the evidence that 1) there is no practicable alternative to the proposed work or project with less adverse effects and that 2) such activity, including proposed mitigation measures, will have no significant adverse impact on the resource areas or resource area values protected by the Bylaw." In addition, the Arlington Wetland Regulations (Section 31) currently require compliance with Climate Change Resilience standards to protect resource areas that may be directly impacted by "extreme weather events expected to be more prevalent or more intense due to climate change, in surface runoff of pollutants, and in wildlife habitat."

It is my opinion that the Conservation Commission prohibit Artificial Turf Fields in jurisdictional Wetland Resource areas due to the significant adverse impacts on the resource areas and resource area values and adverse impacts to climate change resilience. The evaluation of practicable alternatives, such as organically managed natural turf fields, may be further discussed.

**My reading of several scientific studies (cited below) discussed the following Adverse impacts:**

- 1) Chemical Pollution: Toxic chemicals in some of the parts that make up an artificial turf field are harmful to wetland resource areas because they can migrate through leaching, airborne dust, volatilization, and physical migration of infill particles. Known toxic chemicals including zinc, lead, polyaromatic hydrocarbons (PAHs), phthalates, and volatile organic compounds (VOCs), have been documented (1, 2, 5, 6). Synthetic grass fibers are made of polyethylene or polypropylene. Direct toxicity to aquatic organisms has been documented from Artificial Turf Field surface runoff during rainstorms based on whole effluent toxicity (changes to runoff pH and hardness, as well as pollution from metals, semi/volatiles, and other contaminants), especially Zinc toxicity (3). Additionally, PFAS, the “forever” chemical, is found mainly in the grass blades and carpet backing material. PFAS environmental impacts from artificial turf are under-studied, but part-per-trillion (ppt) levels have been shown to have adverse effects (6) and PFAS has been documented to leach from Artificial Turf Fields (8). EPA is expecting to publish aquatic life criteria for PFAS in 2023 (9).
- 2) Heat effects: The plastics in Artificial turf fields exacerbate heat stress in already stressed urban resource areas of town. Temperatures of over 150 degrees F have been routinely recorded on Artificial Turf Fields during June and summer months, compared to natural grass fields with temperatures of < 90 degrees F (5). The additional heat energy shed by an artificial turf field on a hot day is estimated at 10 to 20 gigawatts (10). Cooling of artificial turf fields for use by spraying water exacerbates chemical, plastic, and particulate pollution. Increased heat effects due to climate change will add 13 to 23 days of > 90 degrees F from the current 8 days per year (Table 26, reference 7).
- 3) Plastic pollution: synthetic particles migrate into resource areas, resulting in plastic and microplastic pollution.
- 4) Particulate pollution: Crumb rubber infill routinely migrates from older fields into the surrounding resource areas, as directly seen next to Mill Brook at the Arlington Catholic Artificial Turf Field (reference Arlington Conservation Commission Letter of March 26, 2021 and subsequent Land Steward observations and pictures through December 1, 2022)
- 5) Climate Change resilience impacts: heat stress negatively impacts wildlife habitat values, increased pollutant loads from increased surface runoff and infill particulate migration, loss of carbon sequestration as a climate resilience strategy, limited useful lifespan (8-10 years) generates additional, recurrent installation impacts on resource areas.
- 6) Adverse impacts on wildlife habitat and resource area values that are harmed with an Artificial Turf field include: toxicity to aquatic life, loss of natural soil and natural grass habitat for insects and other invertebrates (especially burrowing organisms), limited foraging and prey availability for birds and small mammals, loss of pollinator use, disrupted habitat connectivity, and impacts to species composition and the water cycle owing to extreme heat.

Adverse Impacts References:

- 1) EPA, July 2019: Tire Crumb Rubber Characterization  
<https://www.epa.gov/chemical-research/july-2019-report-tire-crumb-rubber-characterization-0>
- 2) R. Massey, L. Pollard, & H. Harari, Journal of Environmental & Occupational Health Policy, February 23, 2020 (Vol 30, Issue 1): Artificial Turf Infill: A comparative Assessment of Chemical Contents  
<https://journals.sagepub.com/doi/full/10.1177/1048291120906206>
- 3) CTDEP, July 2010: Artificial Turf Study: Leachate and Stormwater Characteristics  
<https://portal.ct.gov/-/media/DEEP/artificialturf/DEPArtificialTurfReportpdf.pdf>
- 4) TURI, September 2020: Athletic Playing Fields & Artificial Turf: Considerations for Municipalities and Institutions  
[https://www.turi.org/content/download/13271/203906/file/Factsheet.Artificial\\_Turf.September2020.pdf.pdf](https://www.turi.org/content/download/13271/203906/file/Factsheet.Artificial_Turf.September2020.pdf.pdf)
- 5) TURI, April 2019 (updated): Athletic Playing Fields – Choosing Safer Options for Health and the Environment  
<https://www.turi.org/content/download/11980/188623/file/TURI+Report+2018-002+June+2019.+Athletic+Playing+Fields.pdf>
- 6) TURI, February 2020: Per- and Poly-fluoroalkyl Substances (PFAS) in Artificial Turf Carpet  
<https://www.turi.org/content/download/12963/201149/file/TURI+fact+sheet+-+PFAS+in+artificial+turf.pdf>
- 7) Town of Arlington Hazard Mitigation Plan – 2020 update  
<https://www.arlingtonma.gov/home/showpublisheddocument/51627/637268071185670000>
- 8) York Analytical Data for PFAS from swale runoff of Amity High School Artificial Turf Field in Woodbridge, CT  
<https://subscriber.politicopro.com/eenews/f/eenews/?id=00000181-b526-d010-a3cb-b5aed1070000>
- 9) PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024  
[https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap\\_final-508.pdf](https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf)
- 10) Heat Energy Source: <https://doi.org/10.1089/scc.2021.0038>

### **Precedent in other Municipalities in MA**

Several municipalities currently have banned or have a moratorium on permitting Artificial Turf fields including:

Boston – banned in 2022 due to PFAS:

<https://www.theguardian.com/environment/2022/sep/30/boston-bans-artificial-turf-toxic-forever-chemicals-pfas>

Concord – 3-year moratorium (2016); town meeting requested another 5 year moratorium as of May 2022: <https://concordma.gov/DocumentCenter/View/35180/Article-16-Moratorium-on-Installation-of-Synthetic-Turf-on-Town-Land---Citizen-Petition>

Malden – residents advocating for natural grass field (2022):

<https://advocateneews.net/malden/news/malden-hopeful-as-boston-bans-toxic-turf/>

Nantucket – 1 year moratorium (2022): <https://www.ack.net/stories/nantucket-public-schools-put-artificial-turf-plans-on-hold-for-at-least-a-year,27767>

Sharon – 3-year moratorium (2020): <https://ecode360.com/37379890>

Wayland – 3-year moratorium (2021) and evidence of crumb rubber migration into nearby waterways after storm (2021): <https://ecode360.com/38888159> and <https://patch.com/massachusetts/wayland/big-mess-after-storm-floods-wayland-hs-crumb-rubber-field>

### **Practicable Alternative**

Organically managed natural turf field employing aeration & mowing techniques and/or over similar stormwater infiltration systems used below artificial turf fields allow for improved drainage, organic management reduces need for extensive nutrients and harmful chemical treatments, allows for some habitat functions & values and is a more climate resilient alternative (sustainable, lower heat effects, less pollution runoff with organic management). References: Springfield with 67 acres of organically managed athletic fields (10), Marblehead with 20 acres of organically managed athletic fields (11), Martha's Vineyard (12); and the TURI report that includes cost comparison table for Artificial Turf vs. Organically managed Natural Turf (4).

Organic Natural Turf Management references:

- 11) City of Springfield, June 2019: Natural Grass Playing Field Case Study  
<https://www.turi.org/content/download/12156/190509/file/Natural+Grass+Playing+Field+Case+Study+Springfield+MA.+June+2019.pdf>
- 12) Marblehead, November 2020 (revised): Natural Grass Playing Field Case Study: Marblehead, MA  
<https://www.turi.org/content/download/12705/198916/file/Natural+Grass+Playing+Field+Case+Study+Marblehead+MA+revised.Nov2020.pdf>
- 13) Martha's Vineyard, December 2020: Natural Grass Playing Field Case Study: Martha's Vineyard, MA  
<https://www.turi.org/content/download/13432/205432/file/Natural+Grass+Playing+Field+Case+Study+MV+MA.Dec2020.pdf>